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ABSTRACT

Educators generally assume that questioning promotes learning and that higher level questions do so better than lower level questions. But there are a number of problems with these assumptions. First, the classification of questions as higher level or lower level is ambiguous. The distinction is confused by such issues as non-controversial responses, use of the convergent/divergent distinction, question relevancy sequencing, and simultaneous functions. A second problem is that, in classroom interaction, the complexity of the actual responses does not always match the complexity of the questions. Third, not only do reason and recall questions vary in level of difficulty but some recall questions may be more difficult to answer and require more complex thinking than some reason questions. The fourth and final problem is one of values: it is assumed that if questions are more difficult to answer, they are better. Examination of these problems suggests that not enough is known about teacher questioning to state with certainty that higher level questions are really better. (BW)

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ARE HIGHER LEVEL QUESTIONS REALLY BETTER?

by

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Teachers and other educators generally assume that questioning promotes learning (Dillon 1982a, 1982b), and further, that higher level questions do so better than lower level questions. As Sanders (1966, p. ix) puts it, "Good questions are directed toward learning and evaluative thinking, rather than determining what has been learned in a narrow sense." As a result of these assumptions, many teachers feel guilty when they don't use a large number of higher level questions. But should they? There are a number of problems with the higher level/lower level distinction. Examination of these problems suggests that we don't know enough about teacher questioning as yet to state with certainty that higher level questions are really better.

The Classification Problem

Winne (1979) has pointed out that questions considered good as well as those considered poor have been known by a variety of names. Poor questions, i.e., those requiring short factual responses, have been described by the terms lower cognitive, fact, knowledge, convergent or recall. Conversely, good questions, i.e., those requiring reasoned responses, have been described by the terms higher cognitive, divergent, or reason. Consideration of the following six problems reveals that such distinctions are simplistic.

First, all lower level questions do not necessarily require recall just as all higher level questions do not necessarily

require reasoning. For example, the question, "Did the story have a happy ending?", would typically be classified as a higher level reason question. However, if everyone knows what happy endings are and the ending of the story being discussed fits the standard accepted meaning, (in short, if the meaning is non-controversial, Sanders, 1966), then the question might better be classed as lower level. Clearly, questions that appear superficially, to be of the simple factual recall type or of the complex reason type may not be.

Second, there is a similar classification problem with the use of the terms convergent and divergent. Torrance (1962) suggests that convergent questions receive the same or similar responses from all respondents. It is often assumed that such questions are lower level, of the factual recall type. Similarly, it is often assumed that all divergent questions require reasoning. Again, however, responses to these questions may be either recalled or reasoned or both depending on whether or not the meaning is controversial (Sanders, 1966). For example, the divergent question, "What do you like to do best in the summer?" requires reasoning, whereas the divergent question "When is your birthday?" requires recall. Similarly, the convergent question, "What is 28596 x 46" requires reasoning, whereas the convergent question, "What colour was her dress?" requires recall.

The third problem is question relevance. Considering two hypothetical questions for the story "The Three Little Pigs", Beck and McKeown suggest that the question "What did the third little pig use to build his house?" is based on information of

central importance to the story whereas the question "How many bricks did he use?" is trivial. Such distinctions are not captured, however, when both are classed simply as lower level questions.

The fourth and fifth problems concerning sequencing. According to Beck and McKeown (1981) two types of question sequence may deter comprehension. The first occurs typically in elementary school basal reading programs. Here the teacher has students read a few pages to find out "A", for example. Then the teacher questions the students to see whether or not they found out "A". Next the teacher backtracks to ask about other things that occurred in the story on the pages the students have just finished reading. Such questioning patterns may seriously disrupt comprehension of story sequence.

The other detrimental questioning sequence is where a series of factual questions is followed first by a series of inferential questions and then by another series of evaluation questions. When students are taken through a story at one level and then at another level and then a third time at another level, they may have trouble synthesizing or drawing conclusions because no integration of the levels is included. Classifying questions as higher level or lower level glosses over such difficulties.

The sixth and final problem is that of simultaneous functions. Consider the difference between explicit and implicit meaning. In the question "Do you think that Judy Blume had any special reason for naming the book Tales of a Fourth Grade Nothing?", the explicit question is "Do you think?".

The answer to this question is a simple "yes" or "no". Most probably, however, an implied question is also being asked, namely, "What was the special reason?". This question could be described then as being simple and complex simultaneously.

There is a second aspect of the simultaneous functions problem: questions perform both cognitive and social functions. In the question "Who was the main character, Johnny?", for example, the teacher may be asking a lower level question (a cognitive function) as well as allocating the next turn to Johnny as well as stopping Johnny and Jimmy from fooling around (social functions). Green (1981), Griffen and Humphrey (1978) and Mehan (1979) have addressed other aspects of the simultaneous function problem. Such work demonstrates that classifying according to taxonomies does not capture the social complexity of teacher questions.

In sum, classification problems arise when questions are classified incorrectly based on insufficient examination, when the relative importance of the content being addressed is not considered and when questions are classified in only one way. Researchers who routinely code questions unidimensionally are likely to produce an incomplete and hence misleading picture of what teacher questions are accomplishing.

The Correspondence Problem

A second problem has to do with the correspondence between question type and response type. The following example highlights one type of correspondence problem. The transcript

segment is taken from an interview between a grade six teacher and one of his students discussing the novel "Tales of a Fourth Grade Nothing" by Judy Blume. In this transcript, pauses of 1/2 second are marked by dots, arrows indicate intonation, and stressed words are underlined. Periods have been eliminated for purposes of clarity.

Q# 24: Which of the tales.....of all the ones that Peter told us in that book, whi which one do you suppose..... told about something that Fudge had done that angered him the most?

R# 24: When he ate his turtle ....

Q# 25: O K Tell me about that one What happened? and how did it turn out?....

R# 25: um....It was at the end of the book and he um..

Q# 26: Whose turtle was it?

R# 26: It was Peter's turtle, and um Peter was quite sure that he wouldn't do anything with his turtle cause he told him not to and at the end he um..he came into the room and he went to see if his turtle was alright and it was missing so..he went to see what happened and his mother asked him what happened to him..and uh he he um Fudgy said "yummy" and so he knew he ate him..and took him to the hospital and took an X-ray and 'ey saw this turtle inside him.

Q# 27: O K Um....What happened to the turtle?

R# 27: It died

Examination of this transcript segment makes clear the danger of assuming that response type necessarily matches

question type. Consider the response to the simple recall question "whose turtle was it?". The student's answer is not just the required word "Peter" but instead a much more complex recall response consisting of several sentences which attempt to answer two questions at once.

It would appear that the teacher considers the student response to question #25 inadequate because after a pause of one second, the teacher asks the next question presumably to help the student organize her thoughts. It could be argued, however, that perhaps the student just needed a bit more time following question #25 to formulate her responses. Perhaps if the teacher had waited longer than one second before asking another question, the student might have completed the response acceptably. (The beneficial effect of increased wait-time on student response has been examined in science teaching by Rowe, 1974a, 1974b, and others, e.g., Swift and Gooding, 1983.) Despite such possibilities, however, the fact remains that in classroom interaction, for one reason or another, the complexity of the actual responses does not always match the complexity of the questions. One needs to examine sequences of questions along with their responses in whole class contexts to bring such problems to light.

The Problem of Response Complexity

It is often tacitly assumed that responses to higher level questions are longer and therefore more complex and hence more difficult than the responses to simple factual recall questions.

Such is not always the case. First, some reason questions require lengthy responses. Others may only require a response of "yes" or "no". Similarly, some recall questions may demand short answers while others ask for long well-structured responses. In sum, reason questions do not necessarily demand longer responses than recall questions. (See tables 1 and 2.) Second, although it is probably generally true that a longer response is more difficult to formulate than a short response, it is not necessarily true. For example, a well thought out 'yes' may require more thought and therefore be more difficult to formulate than a long rambling report. Further, in responses of similar length, if one has a subject/verb/object word order and the other is a passive, it could be argued that the syntactic complexity of the passive is greater and hence that it is more difficult to formulate. Clearly, the notion that response length matches response difficulty is crude though it does seem to account for the fact most of the time and can usefully be employed to understand teacher questioning and its effects.

Insert tables 1 & 2 about here pp. 15 & 16.

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A few examples may clarify this issue. The examples, included in tables 1 and 2 have all been taken from the same interview discussed earlier with the exception of the responses to both Type A questions where the actual responses were not successful. In these instances hypothetically acceptable responses have been included instead.

In table 1, Type A is a complex reason question. It has been so coded because the response requested consists of several sentences. It is generally assumed that all reason questions normally require similar lengthy responses. There are two

salient reasons why such is not the case. First, reason questions of this sort may simply be too difficult sometimes. In fact, the student's actual response here was "His brother. Oh I don't know." Apparently the student gave up because it was too difficult.

Second, reason questions may be worded so as to require responses of varying lengths. Type B questions, for example, have been coded as simple reason questions because the response requested is simpler - a single sentence. In addition, Types C, D, E and F require responses that are even less complex. (Types E and F are clarification requests.) And yet, clearly, they do require reasoned responses. It is possible to grade these question types tentatively on a continuum from easy to difficult according to the complexity of the response requested. And, bearing in mind the cautions described earlier, it is useful to consider longer responses as being more difficult. The purpose of the continuum is not to state with certainty that one question type is always more difficult than another, but to point out that all reason questions are not of equal difficulty.

In Table 2, Type A questions have been defined as complex recall because the student is being asked to recall and organize a sequence of events. Students often have a great deal of difficulty organizing such lengthy recall questions. (The transcript provides evidence of this difficulty.) And yet because they are recall questions, it is often assumed that they are easy. Just as in the case of reason questions, recall question types can be arranged in a continuum. Again, such a

continuum demonstrates that all recall questions should not be considered uniformly easy.

Further, from comparing Tables #1 and #2, it becomes clear that not all reason questions are necessarily more difficult than all recall questions. In sum, not only do reason and recall questions vary in level of difficulty but some recall questions may be more difficult to answer and require more complex thinking than some reason questions.

The Values Problem

The fourth and final problem is one of values. It is assumed that if questions are more difficult to answer they are better. Are we to assume then that a difficult question that doesn't work (i.e., receives no response or a statement like "I don't know") is better than an easier question that does get some response? Surely, the first consideration if one is to rank questions according to some sort of scale is whether or not they work. The social functions of questions are a consideration here. Some questions may not work, for example, if they appear too threatening (Farrar, 1981; 1983).

Another important consideration is context. In some contexts, recall questions are more appropriate than complex reason questions. Sometimes, for example, it makes sense to ask a series of recall questions in order to establish adequate background before discussing complex issues. In such contexts, recall questions should perhaps be considered more appropriate and therefore better than reason questions. Guszak's (1967)

classic finding that teachers use more fact questions than any other kind could then be read in a different light. It could be argued that the relatively high proportion of fact to reason questions exemplifies a proportion more conducive to learning perhaps than a steady stream of complex reason questions. Clearly, sequences of teacher/student exchanges in many whole lesson contexts need to be examined before valid value judgments can be made as to the superiority of one question type over another.

Concluding Comments

In conclusion, the answer to the question, Are higher level questions really better?, is, Not necessarily! We don't know enough about teacher questioning yet to say. Rather than being concerned about asking enough higher level questions, teachers might better ask themselves first whether their questioning inhibits or encourages and second, whether their questioning results in discussion of relevant issues?

Teacher questioning is a complicated and multifaceted activity. Simple either/or classification schemes are insufficient tools for examining and coding such complexity. They tend to gloss over important distinctions and result in misleading value judgments. More qualitative analyses of sequences of teacher questions and student responses are needed to contribute to our slowly developing understanding of the truly complex art of teacher questioning.

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REASONED RESPONSE SOUGHT

	QUESTION	RESPONSE
A	COMPLEX REASON QUESTION Why the word nothing?	SEVERAL SENTENCES 'Nothing' describes how Peter felt. He felt like a nothing because everyone paid more attention to his younger brother Fudge.
B	SIMPLE REASON QUESTION How did Peter react to having to stand on his head?	SIMPLE SENTENCE He didn't like it.
C	ALTERNATIVES QUESTION Which was your favourite of all the stories? Which one do you suppose told about something that Fudge had done that angered him the most?	SIMPLE SENTENCE OR A FEW WORDS When he ate his turtle.
D	YES-NO QUESTION (But do you think) this was the story where he was most deeply hurt?	YES-NO Yeh
E	STATEMENT & TAG QUESTION As many of them, eh?	AGREE Yeh
F	STATEMENT QUESTION This was Fudge.	AGREE Yeh

TABLE 1

RECALLED RESPONSE SOUGHT

	QUESTION	RESPONSE
A	COMPLEX RECALL QUESTION Tell me about that one. What happened and how did it turn out?	SEVERAL SENTENCES Peter came into the room and found that his turtle was missing. He had told Fudgy not to come into his room but when Fudgy said "Yummy", he figured Fudgy had come into the room and eaten his turtle. They book Fudgy to the hospital and when they X-rayed him they found the turtle in his tummy. The turtle died and Peter was very upset.
B	SIMPLE RECALL QUESTION What happened to the turtle? Who was in the restaurant besides Fudge?	ONE WORD OR A FEW WORDS OR A SIMPLE SENTENCE He died. Peter and his mother.
C	ALTERNATIVES QUESTION Was he in the 4th Grade or was it his brother?	ONE WORD OR A FEW WORDS OR A SIMPLE SENTENCE He was in the 4th Grade.
D	YES-NO QUESTION Does this story have a happy ending?	AGREE Yeh
E	STATEMENT & TAG QUESTION Turn four during the book, eh?	AGREE Yeh
F	STATEMENT QUESTION But he was there for the most of it.	AGREE Yeh.

MORE DIFFICULT? ↑ ↓ EASIER?

TABLE 2